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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,321	09/22/2005	Karl Thiele	US030084US	6538

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EXAMINER	
ROSENAU, DEREK JOHN	

ART UNIT	PAPER NUMBER
2834	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,321	THIELE, KARL	
	Examiner	Art Unit	
	Derek J. Rosenau	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 September 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because Figures 1, 4, 6, and 8 should have descriptive terms in the boxes. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings were received on 2/19/2007. These drawings are accepted.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 8, 9, 11-13, 15, 19, 25-27, 29, 30, 32, 75, 76, and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ossmann (US 20060119223) in view of Sumanaweera et al. (US 6259367).

5. With respect to claim 1, Ossmann discloses an apparatus (Fig 4) comprising: a two-dimensional array transducer (item 402) transmitting ultrasonic energy in tissue at a fundamental frequency.

Ossmann does not disclose expressly that the transmitted ultrasonic frequency is transmitted with sufficient power to generate a harmonic of the fundamental frequency in the tissue.

Sumanaweera et al. teaches an ultrasonic transducer array in which the transmitted frequency is the fundamental frequency, which excites a harmonic frequency of the fundamental frequency in the tissue (column 8, line 6 through column 9, line 5).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the Harmonic frequency response of Sumanaweera et al. with the transducer array of Ossmann for the benefit of eliminating the need for additional contrast agent in creating the ultrasonic image (column 9, lines 48-51).

6. With respect to claim 2, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses that the array transducer includes a total number of elements of which at least 25% are excited to transmit the ultrasonic energy (Fig 4 and Paragraphs 58-60).

7. With respect to claim 8, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Sumanaweera et al. discloses that the array transducer is constructed

of materials comprising a single crystal (column 1, lines 48-50). Although Sumanaweera does not disclose the use of a single crystal, Sumanaweera does disclose the use of PZT, which is a single crystal material.

8. With respect to claim 9, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Sumanaweera discloses that the array transducer is constructed of a plurality of piezoelectric elements of a single crystal (column 1, lines 48-50).

9. With respect to claim 11, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Sumanaweera et al. discloses that the array transducer transmits the ultrasonic energy at a sufficient power to generate a second harmonic in the tissue having a maximum power level of less than 15 dB from the maximum power level of the fundamental frequency in the tissue (column 8, line 66 through column 9, line 5). While Sumanaweera et al. does not disclose expressly that the maximum power level of the second harmonic in the tissue is greater than the power level of the fundamental frequency in the tissue; however, it has long been held that it obvious to optimize the performance of a device by routine experimentation, and if the modifications are within the capabilities of a person of ordinary skill in the art. Therefore, at the time of invention it would have been obvious to a person of ordinary skill in the art to ensure that the power level of the second harmonic was at least 15 dB below that of the fundamental, as this modification could have been made through routine experimentation.

10. With respect to claim 12, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses that the array transducer has a checkerboard pattern formed by a plurality of elements (Fig 4), each element being used for either transmit or receive.

11. With respect to claim 13, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses that the array transducer has a checkerboard pattern formed by a total number of elements (Fig 4), at least 25% of the total number being used to transmit and a plurality of the elements being used to receive (Fig 4 and Paragraphs 58-60).

12. With respect to claims 15 and 32, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Neither Ossmann nor Sumanaweera et al. disclose expressly that the array transducer is formed by a plurality of elements in an alternating transmit-receive checkerboard pattern. It has long been held that the shifting of the location of components of device would be obvious to a person of ordinary skill in the art (*In re Japiske* 86 USPQ 70). Therefore, although neither Ossmann nor Sumanaweera et al. discloses the alternating checkerboard pattern of the transmit and receive elements, it would have been obvious to a person of ordinary skill in the art to rearrange the transmit and receive elements of Ossmann and Sumanaweera et al. into any desired pattern, including an alternating checkerboard pattern. Additionally, it ahs long been held that it would be obvious to a person of ordinary skill in the art to optimize a device, where the modifications require only routine experimentation (*In re Aller* 105 USPQ 233). Therefore, it would have been obvious to a person of ordinary skill in the art to rearrange the transmit and receive elements of Ossmann and Sumanaweera et al. into different patterns, including an alternating checkerboard pattern.

13. With respect to claims 19, 25-27, 29, 30, 75, 76, and 78, the claimed subject matter contained therein is the same as that of claims 1-3, 8, 9, and 11-13; therefore claims 19, 25-27, 29, 30, 75, 76, and 78 are unpatentable over Ossmann in view of Sumanaweera et al. as in claims 1-3, 8, 9, and 11-13 above.

14. Claims 3- 5, 14, 16-18, 20, 21, 31, 33-39, 42, 43, 45-60, 63, 64, 66-74 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ossmann in view of Sumanaweera et al. in view of Savord (US 6380766).

15. With respect to claim 3, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses transmit beamforming electronics (Paragraph 7).

Neither Ossmann nor Sumanaweera et al. discloses s high voltage circuit driving the array transducer to transmit the ultrasonic energy.

Savord teaches an ultrasonic transducer array including a high voltage circuit driving the array transducer to transmit ultrasonic energy (Fig 1A).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high-voltage circuitry of Savord with the transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of allowing for a larger range of voltages to be applies to the device (column 1, lines 50-52).

16. With respect to claim 4, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1.

Neither Ossmann nor Sumanaweera et al. discloses a high voltage field effect transistor driving the array transducer to transmit the ultrasonic energy.

Savord teaches an ultrasonic transducer array including a high voltage FET driving the array transducer to transmit the ultrasonic energy (column 3, lines 29-32).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high-voltage circuitry of Savord with the transducer array of Ossmann as

modified by Sumanaweera et al. for the benefit of allowing for a larger range of voltages to be applies to the device (column 1, lines 50-52).

17. With respect to claim 5, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1.

Neither Ossmann nor Sumanaweera et al. discloses means for driving the array transducer with a high voltage to transmit the ultrasonic energy.

Savord teaches an ultrasonic transducer array including means for driving the array transducer with a high voltage to transmit the ultrasonic energy (Fig 1A).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high-voltage circuitry of Savord with the transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of allowing for a larger range of voltages to be applies to the device (column 1, lines 50-52).

18. With respect to claim 14, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses that the array transducer has a checkerboard pattern formed by a total number of elements (Fig 4), at least 25% of the total number of elements being used to transmit the ultrasonic energy.

Neither Ossmann nor Sumanaweera et al. discloses that high voltage electronics are connected to the transmitting elements or that a plurality of elements are connected to low voltage electronics to receive the generated harmonic.

Savord teaches an ultrasonic transducer array including high voltage electronics connected to the transmit elements, and a plurality of elements are connected to low voltage electronics to receive the generated harmonic (Fig 1A).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high and low voltage circuitry of Savord with the transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of forming the high and low voltage circuits on the same substrate (column 2, lines 18-22).

19. With respect to claim 16, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1.

Neither Ossmann nor Sumanaweera et al. discloses expressly a low-voltage circuit and a high voltage circuit driving the array transducer to transmit the ultrasonic energy, the high voltage circuit including a high voltage FET, the low voltage circuit and the high voltage circuit being monolithically formed on a single substrate.

Savord teaches an ultrasonic transducer array including a low-voltage circuit (Fig 1A) and a high voltage circuit driving the array transducer to transmit the ultrasonic energy (Fig 1A), the high voltage circuit including a high voltage FET (column 3, lines 29-32), the low voltage circuit and the high voltage circuit being monolithically formed on a single substrate (column 2, lines 18-22).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high and low voltage circuitry of Savord with the transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of eliminating the need for separate substrates for the low and high voltage circuits (column 7, lines 14-20).

20. With respect to claim 17, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1.

Neither Ossmann nor Sumanaweera et al. discloses expressly a low voltage circuit, and a high voltage circuit driving the array transducer to transmit the ultrasonic energy, the low voltage circuit and the high voltage circuit being formed on a single substrate.

Savord teaches an ultrasonic transducer array including a low voltage circuit (Fig 1A), and a high voltage circuit driving the array transducer to transmit the ultrasonic energy (Fig 1A), the low voltage circuit and the high voltage circuit being formed on a single substrate (column 2, lines 18-22).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high and low voltage circuitry of Savord with the transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of eliminating the need for separate substrates for the low and high voltage circuits (column 7, lines 14-20).

21. With respect to claim 18, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1.

Neither Ossmann nor Sumanaweera et al. discloses expressly means for providing a low voltage circuit and a high voltage circuit both formed on the same single substrate, the high voltage circuit for driving the array transducer to transmit the ultrasonic energy.

Savord teaches an ultrasonic transducer array including means for providing a low voltage circuit and a high voltage circuit both formed on the same single substrate (column 2, lines 18-22), the high voltage circuit for driving the array transducer to transmit the ultrasonic energy (Fig 1A).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high and low voltage circuitry of Savord with the transducer array of Ossmann

as modified by Sumanaweera et al. for the benefit of eliminating the need for separate substrates for the low and high voltage circuits (column 7, lines 14-20).

22. With respect to claim 35, Ossmann discloses at least some beamforming electronics (Fig 4) generating excitation signals in accordance with the control signals (Fig 4), a two-dimension array transducer (Fig 4). Sumanaweera et al. discloses transmitting ultrasonic energy in the tissue at the fundamental frequency with sufficient power to generate a harmonic frequency of the fundamental frequency in the tissue (column 8, line 6 through column 9, line 5).

Neither Ossmann nor Sumanaweera et al. discloses expressly a transducer handle positionable near tissue, the handle external to the ultrasound processing equipment producing control signals for ultrasonic imaging, the beamforming electronics being housed in the handle and the 2D array transducer being housed in the handle.

Savord teaches an ultrasonic transducer array that includes a transducer handle positionable near tissue, the handle external to the ultrasound processing equipment producing control signals for ultrasonic imaging, the beamforming electronics being housed in the handle and the 2D array transducer being housed in the handle (column 1, lines 28-33).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the handle of Savord with the transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of making the device easier for the user to manipulate.

23. With respect to claim 53, the combination of Ossmann, Sumanaweera et al., and Savord discloses an apparatus as in claim 35. Savord discloses a communications channel connecting the handle to the ultrasound processing equipment to allow the control signals produced by the

electronic processing equipment to be provided to the beamforming electronics in the handle (column 1, lines 29-33).

24. With respect to claim 54, the combination of Ossmann, Sumanaweera et al., and Savord discloses an apparatus as in claim 53. Savord discloses that the communication channel is one of the group consisting of a cable and a wireless communications channel (column 1, lines 29-33).

25. With respect to claim 56, the combination of Ossmann, Sumanaweera et al., and Savord discloses an apparatus as in claim 55. Savord discloses that at least some receive beamforming electronics are housed in the handle and processing the received harmonic (Fig 1A), the receive beamforming electronics connected to the electronics processing equipment by the communication channel to allow the electronic processing equipment (column 1, lines 29-33) to display an ultrasonic image on a display in accordance with the harmonic processed by the receive beamforming electronics (column 1, lines 17-20).

26. With respect to claims 20, 21, 31, 33, 34, 36-39, 42, 43, 45-52, 55, 57-60, 63, 64, 66-74, and 77, the claimed subject matter contained therein is the same as that of claims 1-5, 8, 9, 11-18, 35, 53, and 54; therefore, claims 20, 21, 31, 33, 34, 36-39, 42, 43, 45-52, 55, 57-60, 63, 64, 66-74, and 77 are unpatentable over Ossmann in view of Sumanaweera in view of Savord as in claims 1-5, 8, 9, 11-18, 35, 53, and 54 above.

27. Claims 6, 7, 10, 22-24, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ossmann in view of Sumanaweera et al. in view of Mequio (US 4771205).

28. With respect to claim 6, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses that the array transducer includes a plurality of piezoelectric elements forming the array transducer (Fig 4).

Neither Ossmann nor Sumanaweera et al. discloses expressly a high impedance backing for the piezoelectric element.

Mequio teaches an ultrasonic transducer including a high impedance backing for the piezoelectric element (column 1, lines 37-50).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high-impedance backing of Mequio with the ultrasonic transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of ensuring sufficient rigidity to ensure zero deformation (column 1, lines 37-50).

29. With respect to claim 7, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1. Ossmann discloses that the array transducer includes a plurality of piezoelectric elements forming the array transducer (Fig 4).

Neither Ossmann nor Sumanaweera et al. discloses expressly means for providing a high impedance backing for the piezoelectric elements.

Mequio teaches an ultrasonic transducer including means for providing a high impedance backing for the piezoelectric elements (column 1, lines 37-50).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the high-impedance backing of Mequio with the ultrasonic transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of ensuring sufficient rigidity to ensure zero deformation (column 1, lines 37-50).

30. With respect to claim 10, the combination of Ossmann and Sumanaweera et al. discloses an apparatus as in claim 1.

Neither Ossmann nor Sumanaweera et al. discloses expressly that the array transducer transmits ultrasound energy with a waveform having a bandwidth BW greater than or equal to 60% of the fundamental frequency, where $BW = (f_B - f_A)$, f_B is a higher frequency than the fundamental frequency at a power level 6 dB lower than at the fundamental frequency, f_A is a lower frequency than the fundamental frequency at a power level 6 dB lower than the fundamental frequency.

Mequio teaches an ultrasonic transducer in which the array transducer transmits ultrasound energy with a waveform having a bandwidth BW greater than or equal to 60% of the fundamental frequency, where $BW = (f_B - f_A)$, f_B is a higher frequency than the fundamental frequency at a power level 6 dB lower than at the fundamental frequency, f_A is a lower frequency than the fundamental frequency at a power level 6 dB lower than the fundamental frequency (column 4, lines 10-14 and 21-25).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the large bandwidth of Mequio with the ultrasonic transducer array of Ossmann as modified by Sumanaweera et al. for the benefit of increasing the sensitivity of the device (column 1, lines 22-25).

31. With respect to claims 22-24 and 28, the claimed subject matter contained therein is the same as that of claims 6, 7, and 10; therefore, claims 22-24 and 28 are unpatentable over Ossmann in view of Sumanaweera in view of Mequio as in claims 6, 7, and 10 above.

32. Claims 40, 41, 44, 61, 62, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ossmann in view of Sumanaweera et al. in view of Savord in view of Mequio.

33. With respect to claims 40, 41, 44, 61, 62, and 65, the claimed subject matter contained therein is the same as that of claims 6, 7, 35, and 55; therefore, claims 40, 41, 44, 61, 62, and 65 are unpatentable over Ossmann in view of Sumanaweera et al. in view of Savord in view of Mequio as in claims 6, 7, 35, and 55 above.

Response to Arguments

34. Applicant's arguments filed 2/19/2007 have been fully considered but they are not persuasive. Applicant argues that Ossmann does not disclose transmitting ultrasonic energy in tissue at a fundamental frequency; however, as acknowledged by applicant, paragraph 50 of Ossmann states that the transmitted frequency is f_0, which is the notation for a fundamental frequency. Also, as the claim does not make clear what fundamental frequency is intended to be claimed; therefore, the claim language would be met by any frequency. Applicant argues that the rejection of claim 1 is not clearly articulated so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity. However, for claim 1, Ossmann is cited only to show a 2D array transducer transmitting ultrasonic energy at a fundamental frequency. Figure 4, item 402 in Ossmann is described as a 2D transducer element array. It is well known that transducer elements transmit ultrasonic energy at some frequency, and paragraph 50 of Ossmann states that the transmitted frequency is a fundamental frequency. Applicant argues that Sumanaweera et al. does not disclose transmitting ultrasonic energy in tissue at a fundamental frequency and of sufficient power to generate a harmonic of the fundamental frequency in the tissue; however, at column 8, line 66 through column 9, line 5, Sumanaweera et al. states that the transmitted frequency is a fundamental frequency, and that harmonic frequencies are produced in the tissue. These harmonic frequencies may be the result

of non-linear characteristics of the tissue; however, the claim language does not state how the harmonics are generated, it only requires that they be excited in the tissue.

Conclusion

35. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is 571-272-8932. The examiner can normally be reached on Monday thru Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek J Rosenau
Examiner
Art Unit 2834

DJR
4/4/2007

DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800